

REMARKS

Please cancel Claims 39 and 43 without prejudice. Claims 1-4, 8, 38, 40-42 and 44-45 are pending. Claims 1-4, 8, 38, 40-42 and 44-45 are amended. No new matter is added as a result of the claim amendments.

102 Rejections

The instant Office Action states that Claims 1, 4, 8, 38, 40-42 and 44-45 are rejected under 35 U.S.C. § 102(b) as being anticipated by Fogal et al. ("Fogal;" U.S. Patent No. 6,117,693). Applicants have reviewed the cited reference and respectfully submit that the present invention as recited by Claims 1, 4, 8, 38, 40-42 and 44-45 is not shown or suggested by Fogal.

Independent Claim 1 recites that an embodiment of the present invention is directed to a method that includes "receiving a die comprising an integrated circuit formed on a semiconductor substrate that is bonded to a packaging substrate, said integrated circuit comprising a circuit contact pad and said packaging substrate comprising a lead contact pad, wherein a non-stick detection (NSD) contact pad contacts said semiconductor substrate and extends through said packaging substrate, said NSD contact pad coupled via a trace line to a bus line that is coupled to ground; ... and testing said wire connection for failure to stick at said circuit contact pad and at said lead contact pad by checking for electrical continuity along a path comprising said circuit contact pad and said NSD contact pad."

Independent Claim 38 recites that an embodiment of the present invention is directed to a method that includes "receiving a die comprising

an integrated circuit formed on a semiconductor substrate, wherein said integrated circuit die is bonded to a packaging substrate; ... and testing for failure of said wire to stick to said circuit contact pad by checking for electrical continuity along a path comprising said circuit contact pad and a non-stick detection (NSD) contact pad coupled to said semiconductor substrate, wherein said NSD contact pad extends through said packaging substrate and wherein said semiconductor substrate provides electrical continuity between said circuit contact pad and said NSD contact pad for said testing.”

Independent Claim 42 recites that an embodiment of the present invention is directed to a method that includes "connecting the first end of a length of a wire fed from a wire spool to a circuit contact pad in an integrated circuit formed on a semiconductor substrate that is bonded to a packaging substrate; and testing said connecting of said first end of said wire to said circuit contact pad for failure to stick by checking for electrical continuity on a path comprising ... a non-stick detection (NSD) contact pad coupled to said semiconductor substrate, wherein said NSD contact pad extends through said packaging substrate.”

Applicants respectfully submit that Fogal does not show or suggest a contact pad in contact with (or coupled to) a semiconductor substrate, extending through a packaging substrate that is bonded to the semiconductor substrate, and used for testing to detect failure of a wire to stick to other contact pads (e.g., a circuit contact pad and a lead contact pad), as recited in independent Claims 1, 38 and 42.

For example, Figure 4 of Fogal shows a semiconductor dice 12 and a substrate 10. Figure 4 of Fogal also shows bond pads 14 on substrate 10, and bond pads 20 on semiconductor dice 12. Neither the bond pads 14 nor the bond pads 20 extend through the substrate 10 or even the semiconductor dice 12.

The instant Office Action cites electrical connector 26, contact pads 30 and continuity circuitry 38 of Fogal's Figure 2 as disclosing contact pads that extend through the packaging substrate. Electrical connector 26 is described as being a socket. Contact pads 30 are coupled by conductors 16 to bond pads 14. The conductors 16 are on the surface of substrate 10. Continuity circuitry 38 is part of a separate tester 24. None of these elements extends through the substrate 10 of Fogal.

Therefore, Applicants respectfully submit that the present claimed invention recited by independent Claims 1, 38 and 42 is not shown or suggested by Fogal, and that the rejection of Claims 1, 38 and 42 under 35 U.S.C. § 102(b) is traversed. Claims 4, 8, 40-41 and 44-45 are dependent on either Claim 1, 38 or 42 and recite additional limitations. Accordingly, Applicants respectfully submit that the rejection of Claims 4, 8, 40-41 and 44-45 under 35 U.S.C. § 102(b) is also traversed, as Claims 4, 8, 40-41 and 44-45 are dependent on allowable base claims.

103 Rejections

Claim 3

The instant Office Action states that Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fogal in view of Brooks et al. ("Brooks;" U.S. Patent No. 6,326,244). Applicants have reviewed the cited references and respectfully submit that the present invention as recited by Claim 3 is not shown or suggested by Fogal and Brooks, alone or in combination.

Claim 3 is dependent on independent Claim 1 and recites additional limitations. Thus, by demonstrating that the combination of Fogal and Brooks does not show or suggest the limitations of Claim 1, it is also demonstrated that the combination of Fogal and Brooks does not show or suggest the limitations of Claim 3.

As presented above, Applicants respectfully submit that Fogal does not show or suggest the present invention as recited in independent Claim 1. Applicants respectfully submit that Brooks does not overcome the shortcomings of Fogal. Specifically, Applicants respectfully submit that Brooks, alone or in combination with Fogal, does not show or suggest a contact pad in contact with a semiconductor substrate, extending through a packaging substrate that is bonded to the semiconductor substrate, and used for testing to detect failure of a wire to stick to other contact pads (e.g., a circuit contact pad and a lead contact pad), as recited in independent Claim 1.

Accordingly, Applicants respectfully submit that the rejection of Claim 3 under 35 U.S.C. § 103(a) is traversed, as Claim 3 is dependent on an allowable base claim and recites additional limitations.

Claim 2

The instant Office Action states that Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fogal in view of Gang (U.S. Patent No. 6,566,168). Applicants have reviewed the cited references and respectfully submit that the present invention as recited by Claim 2 is not shown or suggested by Fogal and Gang, alone or in combination.

Claim 2 is dependent on independent Claim 1 and recites additional limitations. Thus, by demonstrating that the combination of Fogal and Gang does not show or suggest the limitations of Claim 1, it is also demonstrated that the combination of Fogal and Gang does not show or suggest the limitations of Claim 2.

As presented above, Applicants respectfully submit that Fogal does not show or suggest the present invention as recited in independent Claim 1. Applicants respectfully submit that Gang does not overcome the shortcomings of Fogal. Specifically, Applicants respectfully submit that Gang, alone or in combination with Fogal, does not show or suggest a contact pad in contact with a semiconductor substrate, extending through a packaging substrate that is bonded to the semiconductor substrate, and used for testing to detect failure of a wire to stick to other contact pads (e.g.,

a circuit contact pad and a lead contact pad), as recited in independent Claim 1.

Accordingly, Applicants respectfully submit that the rejection of Claim 2 under 35 U.S.C. § 103(a) is traversed, as Claim 2 is dependent on an allowable base claim and recites additional limitations.

Conclusions

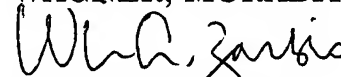
In light of the above remarks, Applicants respectfully request reconsideration of the rejected claims.

Based on the arguments presented above, Applicants respectfully assert that Claims 1-4, 8, 38, 40-42 and 44-45 overcome the rejections of record and, therefore, Applicants respectfully solicit allowance of these claims.

The Examiner is invited to contact Applicants' undersigned representative to expedite resolution of the present Application.

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Respectfully submitted,
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